BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 11-102

5 APRIL 2002

Flying Operations

FLYING HOUR PROGRAM MANAGEMENT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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Pages: 17
Distribution: F

This instruction implements AFPD 11-1, *Flying Hour Program*, and establishes the Air Force Flying Hour Model. It describes the methodology used to determine the number of MAJCOM flying hours that make up the Air Force Flying Hour Program (FHP). It applies to all USAF flight managers. Send comments and suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication,** through channels to HQ USAF/XOOT, 1480 Air Force Pentagon, Washington DC 20330-1480. Major Commands (MAJCOMs) may supplement this instruction. Supplements cannot be less restrictive than the basic publication. MAJCOMs will coordinate supplements to this instruction with HQ USAF/XOOT before publication and will forward one copy to HQ USAF/XOOT after publication. Maintain and dispose of records created as a result of process prescribed in this instruction according to AFMAN 37-139, *Records Disposition Schedule.*

This is a new publication. It must be completely reviewed.

Chapter 1

INTRODUCTION, COMPLIANCE, AND RESPONSIBILITIES

1.1. Introduction and Background. The Air Force Flying Hour Program consists of the flying hours necessary to train aircrews to safely operate their aircraft and sustain them in numbers sufficient to execute their core tasked mission. The Air Force Flying Hour Model (AFFHM) provides the methodology and processes that MAJCOMs will use to build their flying hour programs. This model determines the number of flying hours needed to attain and maintain combat readiness for all aircrews, test weapons and tactics, and fulfill collateral requirements. The Joint Mission Essential Task List, the Air Force task lists, and the MDS-specific volumes of the AFI 11-2 series are the foundational requirements that link aircrew training to tasks required to support the warfighting CINCs. The centrality of the flying hour program to the United States Air Force's readiness and combat capability cannot be overemphasized. For this reason it must be defendable and auditable. To that end, it must be standard across the Air Force, be connected to readiness indicators, based on the train-to-task concept, easily understood, and most importantly, be based upon the requirements to train and experience aircrews to perform Air Force missions.

1.1.1. The intent of this instruction is to provide a common methodology and structure for determining flying hour requirements while acknowledging unique MAJCOM requirements. The depiction of the model and the requirements of this instruction are such that they capture the necessary differences in the sortie-based, event-based and throughput-based flying hour programs of the combat, mobility, and formal training forces.

1.2. Applicability and Compliance. Active Duty, Air Force Reserve Command and Air National Guard will use The AFFHM described in this instruction. Flying hour requirements based on operational missions or Research, Development, Test and Evaluation (RDT&E) will comply with the intent of the model.

1.3. Responsibilities . AF/XOOT is the office of primary responsibility for the AFFHM and is the approval authority for suggested changes. MAJCOM and ANG Directors of Operations are responsible for MAJCOM models.

1.3.1. The lead command establishes the training basis for all mission design series (MDS) aircraft in its inventory. User commands must use the same flying hour computations. See AFPD 10-9, *Lead Operating Command Weapon Systems Management*, for further information.

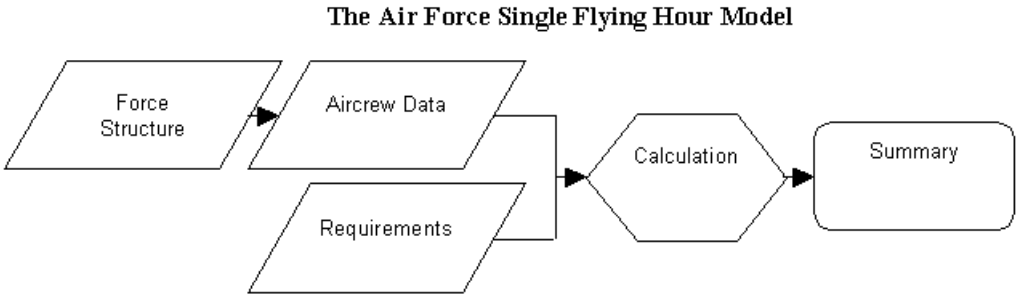
1.4. The AFFHM is composed of 5 core components: Force Structure, Aircrew Data, Requirements, Calculation, and Summary (Figure 1). For operational flying units the relationship of these components expresses the mathematical description: force structure determines the number of pilots, pilots multiplied by requirements determine the number of flying hours. For formal training units the mathematical description is: average daily student load multiplied by the average number of flying hours per student per day, multiplied by the number of training days determines the number of required student flying hours, which determines force structure. MAJCOMs may add other functions to the model as long as its core structure remains intact.

Chapter 2

THE AIR FORCE SINGLE FLYING HOUR MODEL

2.1. Force Structure. See **Attachment 2** for examples. This component is the input site for Primary Aircraft Inventory (PAI) and crew ratio, and is used to determine the number of Aircrew Position Indicator (API) 1 pilots. This data may be portrayed by fleet or by unit, at MAJCOM discretion. For pilot production, no input is required because force structure is a function of the student load

Figure 2.1. The Air Force Single Flying Hour Model.



See **Attachment 7** for additional example of Single Flying Hour Model

2.2. Aircrew Data. See **Attachment 3** for examples. This component is the input site for the types and number of aircrew members that need to be trained. It includes calculations that result in the number of specific aircrew members (i.e., pilots, navigators, boom operators) that require flying training by position and category. The crew position that drives the greatest number of flying hours is the total requirement. The number of aircrew members is usually derived from crew ratio and PAI in the force structure component. The number of overhead aircrew members is determined by manpower standards. For pilot production, this data is derived from production goals and average daily student load.

2.2.1. Position and category of aircrew members and other pertinent aircrew data include but are not limited to:

2.2.1.1. API 1 Aircraft Commanders, First Pilots and Copilots

2.2.1.2. API 2 Navigators

2.2.1.3. API 6 and 8 staff and supervisory positions at wing level and above

2.2.1.4. Experience mix

2.2.1.5. Instructor Pilots and Supervisors

2.2.1.6. In-unit Requalifications

2.2.1.7. Number of projected upgrades

2.2.1.8. Number of aircrews requiring special qualifications

2.2.1.9. Pilot production goals

2.2.1.10. Average daily student load

2.2.1.11. Number and experience mix of instructor pilots

2.3. Requirements. See **Attachment 4** for examples. This is the input site for the type, number, and/or duration of annual aircrew flying training requirements by aircrew position and category as well as operational mission requirements derived from appropriate tasking documents. Requirements include those events associated with Undergraduate Pilot Training (UPT), initial and mission qualification training, continuation training, upgrade, requalification, and special capability training events/sorties that aircrews must accomplish during the training cycle. Requirements may also include missions performed in support of operational users. Requirement sources include AFI 11-2 MDS and major command Ready Aircrew Program (RAP) messages, and MAJCOM and Numbered Air Force instructions and OPLANs.

2.3.1. Because of mission and training differences, training requirement computations should remain sortie-based for CAF aircraft and event-based for helicopters, airlift and tanker aircraft. In cases where an MDS is operated by different MAJCOMs (C-130Es operated by AMC, PACAF and USAFE), the lead command's methodology takes precedence.

2.3.2. Examples include:

2.3.2.1. Ready Aircrew Program (RAP) Sorties (those sorties that lead to basic and combat mission skills) and non-RAP sorties (those sorties that build basic pilot skills such as instrument, advanced handling, navigation, etc.)

2.3.2.2. Mission Qualification Training

2.3.2.3. Special Capability Requirements

2.3.2.4. Operational Missions

2.3.2.5. Collateral and other force support sorties/hours (ferry, functional check flight, weather ship, control ship, etc.)

2.3.2.6. Aging rate required for aircrews to achieve required crew qualifications

2.3.2.7. Number of training events

2.3.2.8. In-unit requalification training

2.3.2.9. Syllabus hours associated with undergraduate and graduate flying training

2.3.2.10. Refly rate, scheduling effectiveness/efficiency

2.3.2.11. Number training days

2.3.2.12. Flying Hour Factor (FHF, the average number of flying hours per student per day) x refly rate

2.4. Flying Hour Computations. Flying hour computations must include an experiencing (aging) calculation. Although the terms are different for fighter versus multi-place, crewed aircraft, copilots and wingmen must accumulate hours permitting them to upgrade at a minimal rate to support planned absorption and crew qualification requirements to maintain a unit's ability to fulfill its assigned missions. This calculation will ensure that flying hour programs identify and provide the required hours to upgrade at a prescribed rate and ensure a standardized requirements computation for all aircraft.

2.5. Calculation. See **Attachment 5** for examples. Flying hour requirements are based on the number of aircrew members that need to be trained and their annual flying training requirements. The following basic formula applies:

2.5.1. For operational flying units: Hours = number aircrews by category x requirements x duration x refly

2.5.2. For pilot production units: Hours = FHF x class load x number of training days. Instructor pilot continuation training requirements are determined in the same manner as operational pilots.

2.5.3. Within this area the individual formulas are listed that calculate the hours necessary to meet each individual training requirement. In general, each requirement will be represented by its own formula that yields flying hours specific to that requirement. Examples of operational training formulas include:

2.5.3.1. Combat Mission Ready hours (separated for experienced and inexperienced pilots)

2.5.3.2. Basic Mission Qualified hours (separated for experienced and inexperienced pilots)

2.5.3.3. Navigation Training/Instrument/Advanced Handling Characteristics hours

2.5.3.4. Hours required to meet additional special missions/capabilities specifically tasked to the unit, such as Combat Search and Rescue, AGM-88, AGM-130, etc.

2.5.3.5. Hours necessary to maintain Instructor Pilot/ Supervisor qualification

2.5.3.6. Hours necessary to conduct Mission Qualification Training

2.5.3.7. Hours required to account for scheduling efficiency and refly requirements (these are historically based)

2.5.3.8. Hours associated with take-off (initial and non-initial), landings, cell formations, air refueling (receiver and tanker)

2.5.3.9. Overseas requirements

2.5.3.10. Aging or upgrade requirements

2.5.4. Examples for Formal Training formulas include:

2.5.4.1. For each MDS, calculations producing the number of training days by month and class, number of students by month and class,

2.5.4.2. Lastly, a position summarizing by MDS indicating total student, instructor pilot continuation training, and collateral flying hours

2.6. Summary. See **Attachment 6** for examples. This is a display of the resulting flying hours. MAJCOMs have the latitude to format this display to meet their needs but as a minimum it will show flying hours by MDS.

CHARLES F. WALD, Lt General, USAF
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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 11-1, *Flying Hour Program*

AFMAN 37-139, *Records Disposition Schedule.*

Abbreviations and Acronyms

AFFHM—Air Force Flying Hour Model

AMC—Air Mobility Command

ANG—Air National Guard

API—Aircrew Position Indicator

BMC—Basic Mission Capable

CAF—Combat Air Forces

CMR—Combat Mission ready

FHF—Flying Hour Factor

FHP—Flying Hour Program

MAF—Mobility Air Forces

MAJCOM—Major Command

MDS—Mission Design Series

MQT—Mission Qualification Training

PACAF—Pacific Air Forces

PAI—Primary Aircraft Inventory

RAP—Ready Aircrew Program

RDT&E—Research Design Test and Evaluation

USAFE—US Air Forces in Europe

Attachment 2

SAMPLE CAF AND MAF FORCE STRUCTURE

Figure A2.1. Sample CAF Force Structure.

Force Structure	FY 02	FY 03	FY 04	FY 05	FY 06
PAA	24	24	24	24	24
Crew Ratio	1.25	1.25	1.25	1.25	1.25

Figure A2.2. Sample MAF Force Structure.

MDS: KC-135 Crew Ratio: 1.36

Squadron PAA	FY 02	FY 03	FY 04	FY 05	FY 06
XX ARS Qtr 1	12	12	12	12	12
XX ARS Qtr 2	12	12	12	12	12
XX ARS Qtr 3	12	12	12	12	12
XX ARS Qtr 4	12	12	12	12	12
XX ARS FY Avg	12	12	12	12	12
API-1 Crews	FY 02	FY 03	FY 04	FY 05	FY 06
XX ARS Qtr 1	17	17	17	17	17
XX ARS Qtr 2	17	17	17	17	17
XX ARS Qtr 3	17	17	17	17	17
XX ARS Qtr 4	17	17	17	17	17
AA ARS FY Avg	17	17	17	17	17

Attachment 3

SAMPLE AIRCREW DATA

Figure A3.1. Sample Aircrew Data (Sortie-Based MDS).

Aircrew Data	FY 02	FY 03	FY 04	FY 05	FY 06
Aircrews					
API 1 Experienced (50%)	12	12	12	12	12
API 1 Inexperienced (50%)	12	12	12	12	12
API 6 CMR Experienced	4	4	4	4	4
API 6 CMR Inexperienced	0	0	0	0	0
API 6 BMC Experienced	4	4	4	4	4
API 6 BMC Inexperienced	0	0	0	0	0
API 8 Experienced	2	2	2	2	2
API 8 Inexperienced	0	0	0	0	0
Total Crews	34	34	34	34	34
Additional Requirements					
IP/Supervisors	8	8	8	8	8
CSAR Experienced	4	4	4	4	4
CSAR Inexperienced	4	4	4	4	4
AGM-88	12	12	12	12	12
MQT Students	21	21	21	21	21
Advisors (AFRC)					

Figure A3.2. Sample Aircrew Data (Events Based).

Aircrew Factors	FY 02	FY 03	FY 04	FY 05	FY 06
CP per AC per crew	1	1	1	1	1
No. of Aircraft Commanders	238	238	238	238	238
No. of CP/FP	238	238	238	238	238
API 1 Receiver Aircrews	16	16	16	16	16
API 6 Staff Positions	85	85	85	85	85
API 6 Staff Receiver Pilots	6	6	6	6	6
API 8 Staff Positions	15	15	15	15	15
Instructor Pilot Upgrades %	33.3	33.3	33.3	33.3	33.3
Instructor Pilot Upgrades	80	80	80	80	80
Aircraft Commander Local Upgrades %	20	20	20	20	20
Aircraft Commander Local Upgrades	24	24	24	24	24

Attachment 4

SAMPLE REQUIREMENTS

Figure A4.1. Sample Requirements (Sortie-Based).

	FY 02	FY 03	FY 04	FY 05	FY 06
Force Sustainment Sorties	4428	4428	4428	4428	4428
CMR Experienced Sorties	1440	1440	1440	1440	1440
CMR Inexperienced Sorties	1392	1392	1392	1392	1392
BMR Experienced Sorties	360	360	360	360	360
BMC Inexperienced Sorties	0	0	0	0	0
Nav Tng Sorties	162	162	162	162	162
INST/AHC Sorties	198	198	198	198	198
MQT Sorties	189	189	189	189	189
CSAR Exp Sorties	32	32	32	32	32
CSAR Inexp Sorties	48	48	48	48	48
AGM-88 Sorties	48	48	48	48	48
IP/Supervisor Sorties	96	96	96	96	96
Scheduling Efficiency Sorties	417	417	417	417	417
Attrition Sorties	46	46	46	46	46

Special Cap. Sorties	FY 02	FY 03	FY 04	FY 05	FY 06
Nav Tng Sorties	6	6	6	6	6
Inst/AHC Sorties	6	6	6	6	6
MQT Sorties	9	9	9	9	9
CSAR Exp	8	8	8	8	8
CSAR Inexp	12	12	12	12	12
AGM-88	4	4	4	4	4
IP/Supervisor Sorties	12	12	12	12	12

Figure A4.2. Sample Requirements (Events-Based).

	FY 02	FY 03	FY 04	FY 05	FY 06
Initial Takeoff:					
Events Required for API 1 ACs	**10**	**10**	**10**	**10**	**10**
Events Required for API 1 CPs	**10**	**10**	**10**	**10**	**10**
Events Required for API 6 ACs	**4**	**4**	**4**	**4**	**4**
Events Required for API 8 ACs	**4**	**4**	**4**	**4**	**4**
Event Duration (hours)	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Instrument Approach:					
Events Required for API 1 ACs	**46**	**46**	**46**	**46**	**46**
Events Required for API 1 CPs	**46**	**46**	**46**	**46**	**46**
Events Required for API 6 ACs	**30**	**30**	**30**	**30**	**30**
Events Required for API 8 ACs	**12**	**12**	**12**	**12**	**12**
Event Duration (hours)	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**

Upgrade Requirements	**FY 02**	**FY 03**	**FY 04**	**FY 05**	**FY 06**
Instructor pilot upgrade requirements as percentage of API 1 ACs	**33.3**	**33.3**	**33.3**	**33.3**	**33.3**
Pre-CIFC Requirements	**10**	**10**	**10**	**10**	**10**
Average pre-CFIC sortie duration (hrs)	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
Pre-CFIC sortie requirements	**3**	**3**	**3**	**3**	**3**
In-Unit AC Upgrade Requirements					
Percentage of local upgrades	**20**	**20**	**20**	**20**	**20**
Percentage of API-1 CPs upgrading	**50**	**50**	**50**	**50**	**50**
Average upgrade sortie duration (hrs)	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
In-unit AC upgrade sortie requirements	**7**	**7**	**7**	**7**	**7**
Average AC upgrade evaluation sortie duration	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
In-unit AC upgrade evaluation sortie requirements	**1**	**1**	**1**	**1**	**1**

Attachment 5

SAMPLE CALCULATION

Figure A5.1. Sample Calculation.

Calculation	FY 02
Total Hours	6294
Force Sustainment Hours	6022
CMR Exp Hours	1958.4
CMR Inexp Hours	1893.1
BMC Exp Hours	489.6
BMC Inexp Hours	0
Nav Tng Hours	220.3
INST/AHC Hours	269.3
MQT Hours	257.0
CSAR Exp Hours	43.5
CSAR Inexp Hours	65.3
AGM-88 Hours	65.3
IP/Supervisor Hours	130.6
Scheduling Efficiency Sorties	567.1
Refly Sorties	62.6
Force Support Hours	272.0
Aircraft ASD	1.36

Event Driven Training	FY 02
Line Crews (API-1)	
Initial Takeoff (P010)	2,380
Non-initial Takeoff (P020)	1,523
Instrument Approach (P070)	6,569

Landing (P190)	**1,999**
Cell Formation (F020)	**595**
Receiver Air Refueling (R010)	**176**
Receiver Transition	**211**
Tanker Air Refueling (R060)	**7,497**
Air Refueling Transition	**5,988**
Overseas (M030)	**7,140**
Overseas Credit	**- 714**
Unit-Specific Training Sortie (M020)	**11,424**
SUBTOTAL	**44,798**

Aging Requirement	**FY 02**
Inexperienced Pilots	**205**
Experienced Pilots	**61,500**
Non-experienced Hours	**1,842**
PROGRAM TOTAL	**63,342**

Attachment 6

SAMPLE SUMMARIES

Figure A6.1. F-16 Sample Summary.

F-16 Summary	FY 02	FY 03	FY 04	FY 05	FY 06
Total Hours	12588	12588	12588	12588	12588
Force Sustainment	12044	12044	12044	12044	12044
Force Support	544	544	544	544	544
Unit Hours					
Unit A					
Force Sustainment	6022	6022	6022	6022	6022
Force Support	272	272	272	272	272
Unit B					
Force Sustainment	6022	6022	6022	6022	6022
Force Support	272	272	272	272	272

Figure A6.2. C-141 Sample Summary.

C-141	FY 02	FY 03	FY 04	FY 05	FY 06
Force Production	1,728	1,728	1,728	1,728	1,728
Force Sustainment	61,342	61,342	61,342	61,342	61,342
Force Support	272	272	272	272	272
User Support	0	0	0	0	0
TOTAL	63,342	63,342	63,342	63,342	63,342

Figure A6.3. T-37 Flying Hour Summary.

Force Production Summary	FY 01	FY 02	FY 03	FY 04	FY 05
Student Hours (SUPT)	40983	34999	24142	11285	0
Student Hours (ALP)	1600	4250	1770	0	0
Student Hours (FWQ)	0	0	0	0	0
Student Hours (Other)	0	0	0	0	0
TOTAL Student Hours	42583	39249	25912	11285	0
Force Sustainment					
Experienced	3541	3145	2120	722	0
Inexperienced	1926	1711	1153	393	0
AFRC CT Additive	1014	820	563	192	0
TOTAL	6481	5675	3836	1307	0
Force Support					
Mission Support	793	793	793	793	0
PAA Rounding	507	267	115	301	0
MX Support	509	464	310	138	0
Support Other					
TOTAL	1808	1524	1218	1232	0
PROGRAM TOTAL	50872	46449	30966	13824	0
PAI	92	84	56	25	0

Attachment 7

AIR FORCE SINGLE FLYING HOUR MODEL

Figure A7.1. Air Force Single Flying Hour Model (Example).